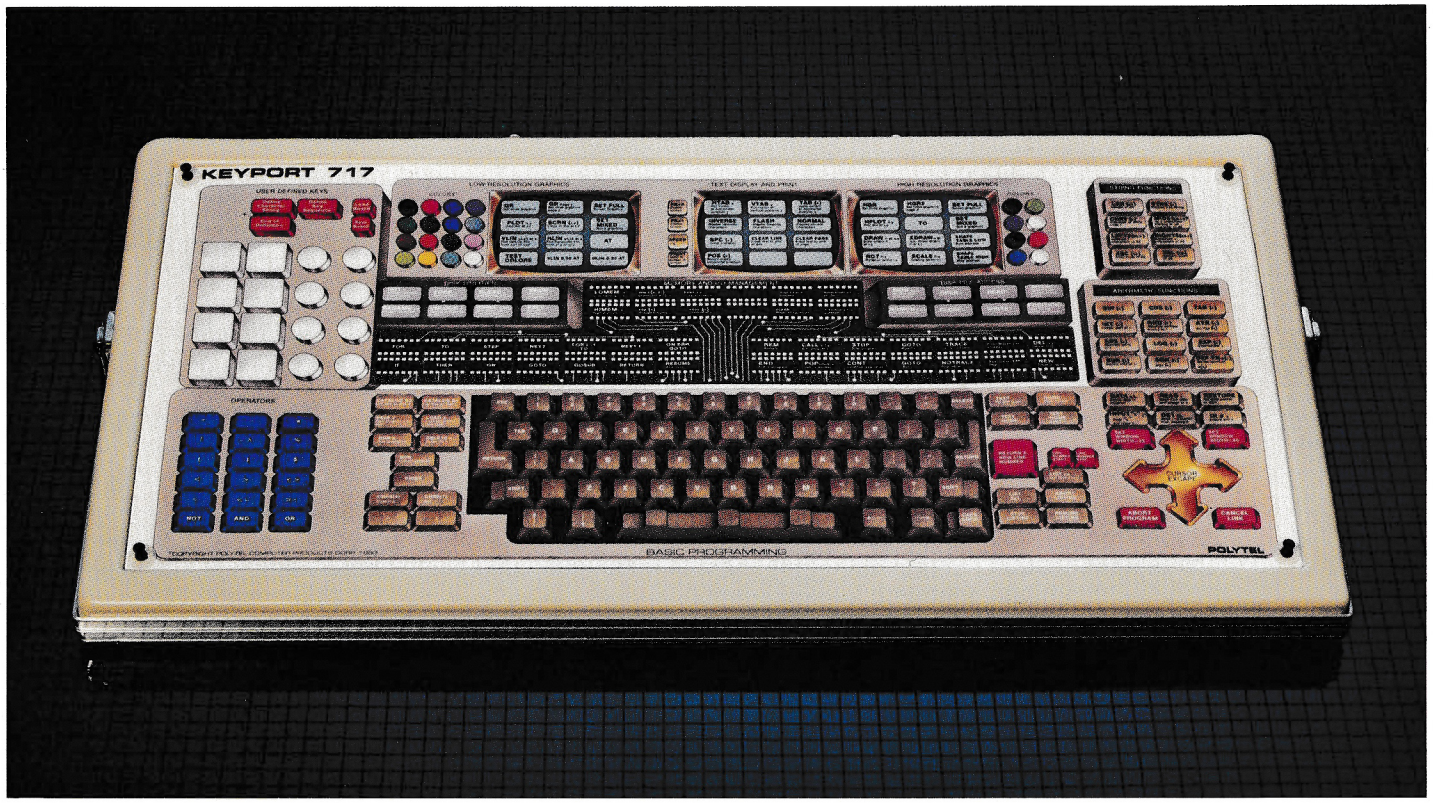
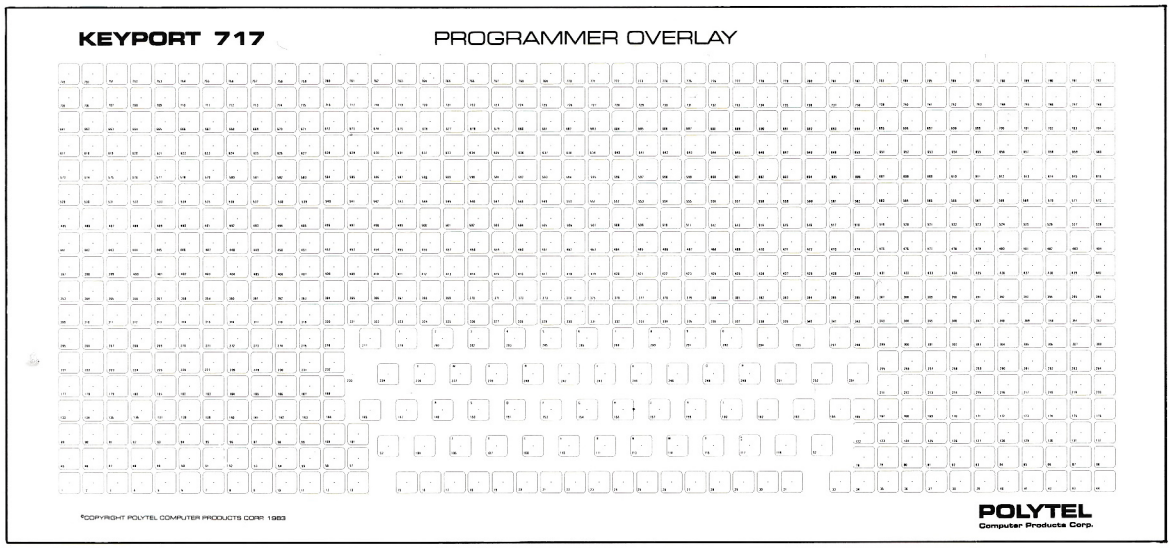
KEYPORT 717™
DATA SHEET



KEYPORT 717 with the "BASIC PROGRAMMING OVERLAY".



"PROGRAMMER OVERLAY" showing all 717 programmable keys.

POLYTEL
Computer Products Corp.

WHAT IS THE KEYPORT 717?

The KEYPORT 717 is a flat, membrane keyboard containing 717 user programmable keys. Each application program uses a different flexible plastic overlay to display the active keys. A typical application uses between 150 and 300 keys. Unused keys do not appear on the overlay. The function of each key is indicated on the overlay by words, symbols or pictures printed on and around the key itself. Each command has its own key, so the user does not have to learn a language or respond to menus. In effect, the KEYPORT overlay is a permanent master menu showing all available commands and functions in the application.

The active surface of the KEYPORT 717 measures 9″ by 22″. It connects to most personal computers through the game port. It does not need an interface card, and does not disable the standard alpha-numeric keyboard. The KEYPORT and the standard keyboard may be used simultaneously to enter commands and data. The KEYPORT uses neither a power supply nor discrete integrated circuits. It can be connected to the computer by as few as 4 wires, and can be located up to 200 feet from the computer. Since the KEYPORT has no moving parts, spilled liquids, dust, or dirt do not affect it.

WHY BUY THE KEYPORT?

a. User-Friendly! Users can see, select, and enter commands without refering to the application manual. Complex commands and menus are reduced to the touch of a single key. Users can enter data faster and more accurately.
b. Programmer-Friendly. Programming is simplified by eliminating menus and syntax analysis. You can develop an application faster while using less memory.
c. Low cost. The KEYPORT costs less per key than any other available keyboard.
d. Since the KEYPORT has no moving parts nor IC's it is reliable. It is light, yet rugged. It is easily mounted on a wall, a desktop, a machine, or anywhere. Without the case it is less than 1/10th of an inch thick. It requires fewer wires and connecting pins than a conventional keyboard.
e. Enhances copyright protection. The full color plastic overlay is far more difficult to duplicate than a diskette, and is easier to copyright.

HOW DOES IT WORK?

Pressing a key changes two electrical resistances in the KEYPORT between the Input line and X and Y Ouput lines. The computer then polls the KEYPORT by sending it a ONE or a ZERO on the Input line and monitoring the X and Y lines for the return signal. The KEYPORT circuit delays the signal by an amount proportional to the X and Y coordinate of the key. By timing the return of the signal, the computer identifies the key.

The decoding circuits containing the resistors are printed on pieces of polyester film which are then laminated together. This membrane "sandwich" uses thick-film technology to create a giant integrated circuit containing the individual circuit elements. The key-reading routine, stored in the computer's memory, features a table with data about each key, the KEY DATA TABLE or KDT. The KDT includes the functions, commands, words, or single characters assigned to each key. It tells the program what to do when a key is pressed. The KDT allows the computer to perform the desired functions with a single keystroke, without using menus or language analysis. A new KDT is loaded with each program, so different keys can have different meanings in different programs. Changing the KEYPORT overlay changes the visual key pattern so that it corresponds to the functions in the KDT.

KEYPORT UTILITIES

It is not necessary to be a programmer to use the KEYPORT with packaged applications like THE FARM or VisiCalc.® In fact, preschool children can control the screen with THE FARM, and first time users can quickly generate spread sheets with VisiCalc.

However, for those who wish to design a keyboard layout for a new or existing program, the necessary tools are provided with each KEYPORT. These tools include utility programs to define keys, build the KEY DATA TABLE, and link it to your program. Suggestions are included to make the new keyboard designs user-friendly. See HOW TO DESIGN A KEYPORT OVERLAY below for a summary of the steps required to design a keyboard layout.

In addition to software tools, blank Programmer Overlays are included with each unit. The Programmer Overlay indicates in light blue the location of each of the 717 potential key centers. A programmer can draw the desired keys, in color, around any of the 717 key centers. After the keys have been defined and activated with the utility software, the key layout can be tested with the application program for ease of use, errors, and omissions. When the design is working to the programmer's satisfaction, the overlay can be printed in quantity on plastic film for distribution, or plotted on film for more limited use. Polytel's Customer Application Department will assist in the preparation of plotted or printed overlays, for a nominal charge.

INTERFACING AND SYSTEM REQUIREMENTS

The KEYPORT comes with cable and connector for the Apple II, II+, or IIe. It plugs into the Apple Game I/O port. Minimum system requirements are 48K and a 16 sector disk drive. No interface card is needed.

The KEYPORT can also be interfaced to most popular personal computers, including the Tandy Color Computer, TI-99/4A, IBM-PC and others. Packaged applications are available only for the Apple at this time. Polytel will provide the information required to interface the KEYPORT to other machines.

PACKAGED APPLICATIONS

1. BASIC Programming Overlay

The BASIC Programming overlay includes keys for all AppleSoft BASIC and DOS commands plus features like AUTO-LINE NUMBER, four-directional, non-destructive cursor for editing, AUTO-REPEAT for all keys, user definable keys, color keys, and more.

2. VisiCalc Programming Overlay

The VisiCalc overlay includes all VisiCalc commands and functions plus a four-directional cursor, printing macros, user definable keys, and a screen memory map on the keyboard for positioning the cursor with a single stroke. The VisiCalc program from VisiCorp must be purchased separately.

3. THE FARM

THE FARM is an exciting children's educational program about animals and life on a farm. With this overlay and diskette, children from 2 to 10 years old can play games, ask questions, and even write their own stories about the farm. The overlay shows pictures of farm objects and animals.

INTERACTIVE PROGRAMMING

The Problem: Menus or Syntax?

Most interactive programs are either menu driven or command driven. The user tells the program what to do by choosing from a menu of functions, or by learning the syntax of a command language and typing in the commands on a typewriter-like keyboard. Neither technique is entirely satisfactory. Menus require tedious programming, use a substantial amount of memory, and increase the program's overall response time. If they have to be sent through telephone networks, menus often consume more transmission time than the actual data, increasing connect-time charges.

Command syntax is more efficient, but is harder to program. Command languages require the user to spend non-productive time learning the command language and constantly checking the reference manual for spelling, punctuation, and rules. Multiple keystrokes introduce a greater possibility for error.

The Answer: Neither!

By using the KEYPORT and designing your own keyboard overlay for a specific application, you can eliminate both menus and syntax analysis. You can create an excellent interface between the application and the end user.

HOW TO DESIGN A KEYPORT OVERLAY

1. Make a list of all possible commands and functions used by the program or application. These commands might be:

   "Print Customer List"
   "Set Timer to Turn on Lights"
   "Load Balance Sheet"
   "Play Note C#"
   "Display Animation Sequence"
   "Paint Shape with Color Orange"
   "Display List of Files on Disk 2"

2. Add to the list any frequently used combinations of commands. For example, TEXT:HOME:LIST is used frequently in BASIC to:

   a. Change screen from GRAPHIC to TEXT mode
   b. Clear the screen, and
   c. List the BASIC program to the screen.

These three commands require 15 keystrokes on a normal alpha-numeric keyboard. By replacing them with one key on the KEYPORT you can save 14 strokes every time the program is listed from graphic mode.

3. Group commands according to a logical scheme for the application, and assign a function number to each group. For example, one group might contain all commands for changing the color of an object on the graphic screen.

4. Assign a KEYPORT key to each command or sequence of commands. Keep the logical groups together. Make big keys for frequently used commands, so that the user can find them quickly. With a pencil, crayon, or colored felt-tipped pen (alcohol based ink works best), draw the keys you want on the Programmer Overlay provided with the KEYPORT. Print the name of each command on a key, with a short explanation if needed. Choose as many keys as needed and locate them anywhere on the overlay. You can even assign two different keys to the same function.

5. Using the KEYPORT utility software, define each key by simply pressing the key you have drawn and entering its function number and commands. Any keys not assigned are ignored. The KEYPORT utility creates a KEY DATA BLOCK for each key. The table of KDBs is called the KEY DEFINITION TABLE, or KDT.

6. Link the KEY DEFINITION TABLE to your program using the KEYPORT utility software.

7. To run the program, fasten the overlay to the KEYPORT. Enter the commands and data by pressing keys on the KEYPORT.

When a key is pressed, the KEY DATA BLOCK and its function number are passed to the program. The program then branches directly to the appropriate subroutine.

DESIGN SUGGESTIONS

1. Make the functions of keys easy to understand. Use legends, symbols, sketches, etc.
2. Use different colors for different groups of keys.
3. Test the program to see if the layout is easy to use. Have someone who is not familiar with the application try to use it with nothing but the overlay for instruction. Add keys for any missing functions or sequences. Enlarge useful keys. Add explanations to the keys or key groups if needed.
4. When your program and overlay are finished and working well, print the overlay on plastic sheets for sale or distribution with the program.

BENEFITS TO THE USER

A user can run an application productively with little (or no) instruction and without learning and typing commands. For the experienced user this means up to 80% less time spent on a job. For the first time user, it means getting productive output from a new application much sooner and with far less frustration.

BENEFITS TO THE PROGRAMMER

The KEYPORT makes a programmer's job easier by eliminating both menus and command syntax analysis. The KEYPORT also enhances your copyright protection, since both hardware and software are required to run your application.

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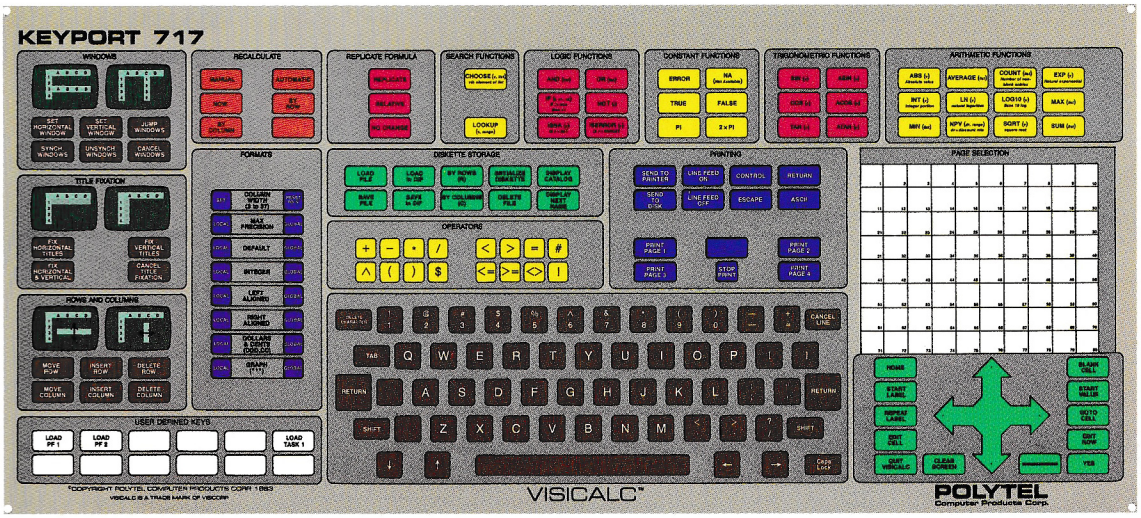
KEYPORT 717™ VISICALC ® DATA SHEET



KEYPORT 717™ VISICALC® DATA SHEET

The KEYPORT 717 is an advanced technology membrane keyboard with 717 fully programmable keys. It plugs directly into the game socket of the Apple II, II+ and IIe computers. The KEYPORT 717 can be configured for different applications by the use of overlays. KEYPORT 717 utility software allows you to develop your own applications on the KEYPORT 717.

VISICALC INTERFACE

The KEYPORT 717 VisiCalc Interface Diskette with Overlay has been programmed to generate all VisiCalc commands with single keystrokes for each command. Other useful functions like SCREEN PAGE SELECTION and USER DEFINED KEYS have been added to the VisiCalc Overlay. Since all commands are displayed on the overlay, the user has less need of the reference manual. Program response time is faster too, because execution takes place immediately after one keystroke, instead of following the one or more menu displays and multiple keystrokes required by VisiCalc with a standard keyboard.

HOW TO USE

Calibrate your keyboard using the procedure **INSTALLING AND CALIBRATING THE KEYPORT**, found on the back of this DATA SHEET. Put the VisiCalc Overlay on the KEYPORT and boot the KEYPORT VisiCalc Interface Diskette. Then boot your standard VisiCalc Diskette from VisiCorp. You can enter any VisiCalc command without having to remember the syntax, because every key has a clear label telling you what it will do. Special combined commands have also been defined as keys. For example, a single key generates a sequence equivalent to / - - allowing you to fill a cell with - and move to the next cell. This feature is very powerful when you underline titles. With a single stroke, you can split the screen horizontally or vertically, synchronize windows, fix titles, jump between windows, delete rows and columns, and much more.

PRINT COMMANDS

A powerful example of the value of a combined command is the PRINT PAGE key. This key generates the string of characters necessary to send one page of the spreadsheet to the printer. Without this key you would have to:

- Move the cursor to the top left corner of the section you want to print
- Enter the print command
- Enter any set-up commands required by your printer
- Enter the lower left coordinate of the section
- Press **RETURN**

SCREEN PAGE SELECTION

A very helpful feature of the VisiCalc Overlay is the SCREEN PAGE SELECTION. By pressing a single key you can go immediately to any screen page of the spreadsheet. You can select one special page for all the input parameters of your model and another for the results. To enter the input parameters, select the "input parameters" page, enter the parameters, then select the "main results" page to see the output before you print the whole spreadsheet.

USER DEFINED KEYS

You can define the white keys on the VisiCalc Overlay to generate any combination of commands, up to 250 characters for each key. The VisiCalc Overlay uses 227 keys for the different VisiCalc commands and the USER DEFINED KEYS, plus 59 typewriter keys. The maximum table length is 3984 characters.

DEFINING USER KEYS

You can redefine any of the KEYPORT keys to meet the special requirements of your application. We suggest you do *not* change any of the VisiCalc command or function keys since they have been specially defined to work with your VisiCalc. Before you begin, decide what characters you want each key to output when you press it.

You can *not* define keys while using VisiCalc. Get out of VisiCalc by pressing **QUIT VISICALC**. Then select menu option 2 for DEFINE BOARD.

The following are the names of the VisiCalc Key Definition Tables (KDTs) and the configurations in which each is used.

VISI40BTAB is loaded if you have an Apple II or II+. It is also loaded if you have an Apple IIe and are using Visicalc™ software for the Apple II and II+.

VISI80BTAB is loaded if you have an Apple IIe with an 80-column card and using Visicalc software for the Apple IIe.

VISI84BTAB is loaded if you have an Apple IIe without an 80-column card and you are using Visicalc™ software for the Apple IIe.

To modify the KDT follow the procedure Defining A Board as described in the Programmer Reference Manual, loading the KDT name that corresponds to your configuration when prompted for **"BOARDNAME"**. Note: **BTAB** is appended automatically, so just enter VISI40, VISI80 or VISI84.

When finished, **SAVE** your new KDT under a new name, then reboot. Use menu option 3 to **LOAD** your new KDT.

HARDWARE AND SOFTWARE REQUIRED

To use the KEYPORT VisiCalc Overlay you need:

- Apple II, II+ or IIe with 48K and a single 16 sector disk drive
- KEYPORT 717
- VisiCalc® software from VisiCorp

The VisiCalc Interface package contains the VisiCalc Overlay and VisiCalc Interface Diskette.

USER DEFINED KEYS

These keys can be defined by you, the user. Each USER DEFINED KEY can be defined as a string of characters. See the procedure **DEFINING USER KEYS** for the instructions for setting up your own special KEYPORT keys. Although you can redefine *all* of the keys on this KEYPORT, we recommend you do *not* change the keys with the printed labels.

Initially these keys are defined as:

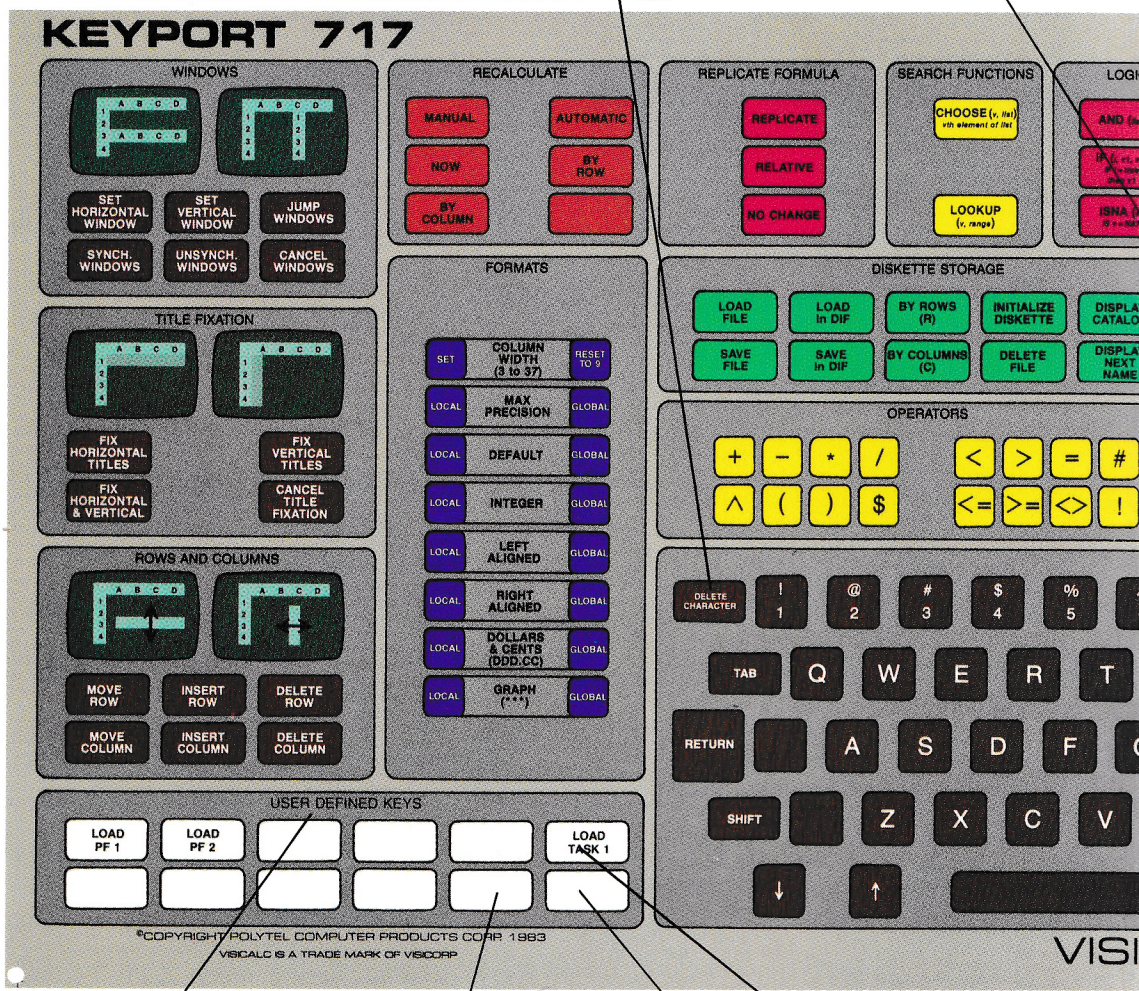
LOAD PF1	**LOAD PF2**	**LOAD PF3**	**LOAD PF4**	**LOAD PF5**	**LOAD TASK 1**
LOAD PF6	**LOAD PF7**	**LOAD PF8**	**LOAD PF9**	**ZERO TASK 1**	**LOAD OS**

Prints 8 columns

Sets up a Print to Disk file. Enter the Fil
right coordinate of the file.

Prints 8 columns, 9 characters wide and 60 lines long from A61 to H120.

Erases the current character and moves the cursor back one position. Functions like the **ESC** key.



This key can be redefined
template for creating a 5
Sheet and Cash Flow.

These keys can be redefined by the user. Currently, loads the file you saved named PF1, PF2, PF3, etc. These files can be regular VisiCalc files, DIF files or Print to Disk files.

This key can be redefined
screen template containin
projection without the Ba
If you just want to make
faster than TASK1.

This key can be redefined by the user. Currently, zeros out the 5 year projection (TASK1) input variables so new calculations can be entered.

9 characters wide and 60 lines long from A1 to H60.

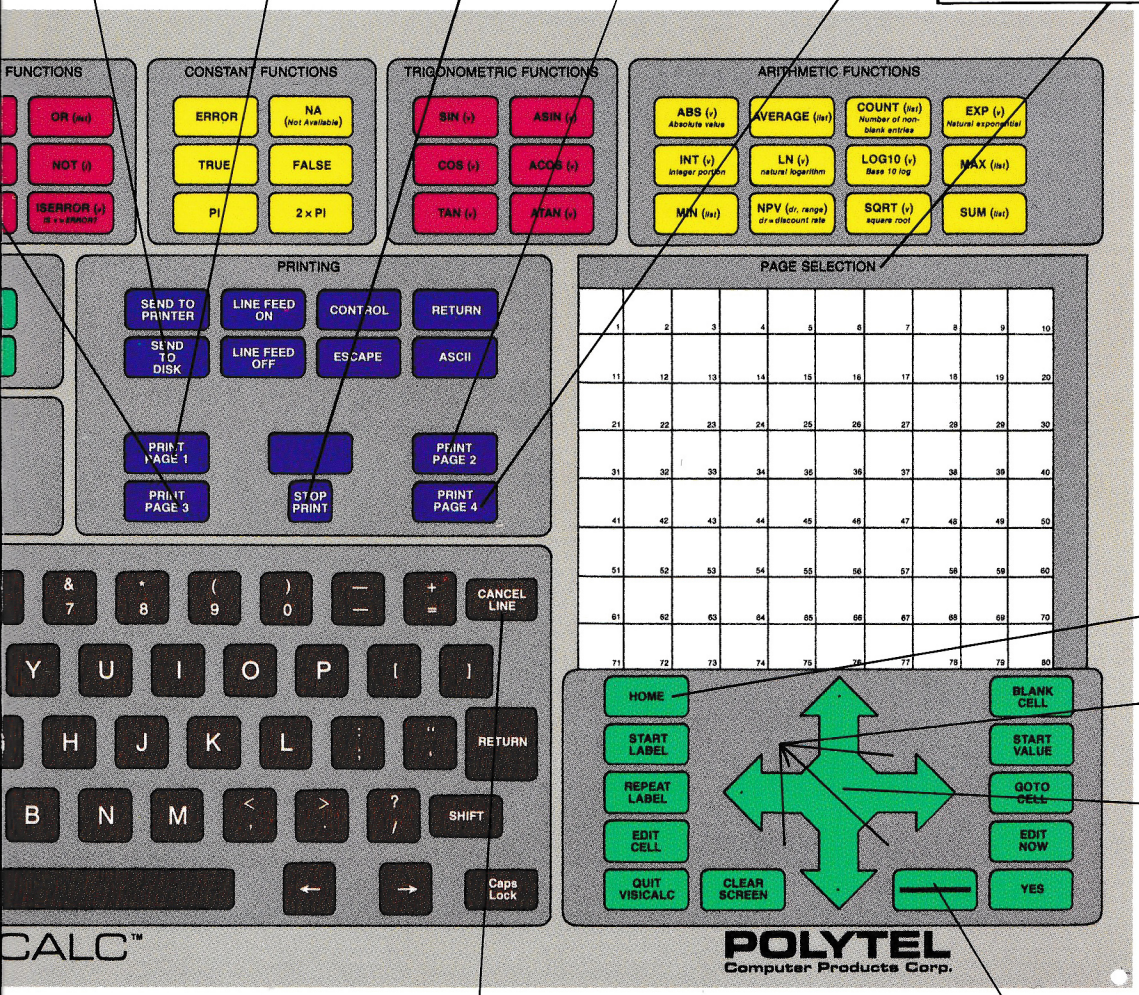
Aborts print command. Functions the same as a **CONTROL C**.

Name and the lower

Print 8 columns, 9 characters wide and 60 lines long from I1 to P60.

Prints 8 columns, 9 characters wide and 60 lines long from I61 to P120.

These keys can be redefined by the user. Currently, keys 1 to 6, 11 to 16, 21 to 26, 31 to 36, 41 to 46 and 51 to 56 display one CRT screen of information each.



Returns the cursor to cell A1.

Moves the cursor diagonally.

Moves the cursor in the direction of the arrow.

by the user. Currently, loads a screen
ear projection of Earnings, Balance

This key can be redefined by the user. Currently, generates / - - very convenient for drawing underlines.

by the user. Currently, loads the
the 5 year Operating Statement
ance Sheet or Cash Flow information.
project Operating Statement, it is

Aborts cell entry. Functions like a **CONTROL C**.

INSTALLING AND CALIBRATING THE KEYPORT

Although the Apple IIe has 2 Game I/O sockets you can only use one at a time. Your KEYPORT will *not* work if the Apple IIe has something plugged into both the internal and external game connectors.

Before you connect the cable or any electrical equipment to your computer, always be sure the power is OFF. Otherwise, you could destroy a RAM chip or one of the other ICs.

When you calibrate the KEYPORT, the computer stores the X, Y values of all the keys of one column and one row. These values are used to identify any pressed key on the KEYPORT. You must calibrate the KEYPORT the first time you use a KEYPORT-computer combination.

After you have calibrated, everytime you boot the KEYPORT VisiCalc Interface Diskette, the calibration data is automatically loaded with the KP Monitor.

You must have calibration data on every diskette you use with the KEYPORT.

If you press the wrong keys while calibrating the KEYPORT, you can restart the calibration by pressing **R**.

STEP	PROMPT	PROCEDURE
1.	—	If your KEYPORT cable has a 9 pin connector, you can plug it into the rear panel of the Apple IIe. Otherwise, position the 16 pin dip connector over the Game I/O connector at the right rear of the Apple. Be sure the notched corner of the connector or the white dot is toward the *front* of the Apple. Gently push the pins into the socket until they are firmly seated.
2.	—	Boot your VisiCalc Interface Diskette.
3.	**PRESS: 'M' FOR MENU OR ANY KEY TO CONTINUE**	Enter **M** from the keyboard to calibrate a new KEYPORT-computer combination.
4.	KEYPORT MENU	Enter **1** from the keyboard to run the Calibration Program.
5.	**PRESS KEY OF Y COORD:**	Find the 12th *column* from the left on the KEYPORT. Beginning at the bottom row, press each key in the column. The computer beeps as you press each key. When you press the top (18th) key, the computer beeps twice to let you know it is ready to calibrate the X coordinates.
6.	**PRESS KEY OF X COORD:**	Find the 9th *row* from the bottom on the KEYPORT. Beginning at the left, press each key in the row. The computer beeps as you press each key. When you press the last (44th) key, the system saves calibration data onto the diskette.
7.	**PRESS: 'M' FOR MENU OR ANY KEY TO CONTINUE**	Press any keyboard key *except* **M** to load the VisiCalc Interface.
8.	**PRESS: 1 FOR 40 COLUMN 2 FOR 80 COLUMN VISICALC**	If you have an Apple IIe version of VisiCalc (regardless of what machine you are running on), enter **2** from the keyboard. Otherwise, enter **1**.
9.	**INSERT YOUR VISICALC DISKETTE AND PRESS RETURN**	Put your VisiCalc Diskette into your drive and press **RETURN** on the keyboard. The system loads VisiCalc and displays the VisiCalc screen.

If you want to copy this calibration data onto another disk, use the KP Monitor Diskette Menu, Selection 3.

USING THE DEMONSTRATION TEMPLATE

If you want to:	Then press:
Input your Operating Statement information	Page Selection 10. Do *not* put information in any cell with * next to it!
Input your Balance Sheet information	Page Selection 20. Do *not* put information in any cell with * next to it!
Look at your Operating Statement	Page Selection 1 and 11.
Look at your Balance Sheet Assets	Page Selection 21.
Look at your Balance Sheet Liabilities	Page Selection 31.
Look at your Cash Flow Statement	Page Selection 41 and 51.

PRINT TO DISK

The VisiCalc Print to Disk is an extremely powerful function. This function lets you set up a series of commands. When you LOAD the disk file, VisiCalc executes the commands as though they were issued from the keyboard. With a Print to Disk file you can automatically:

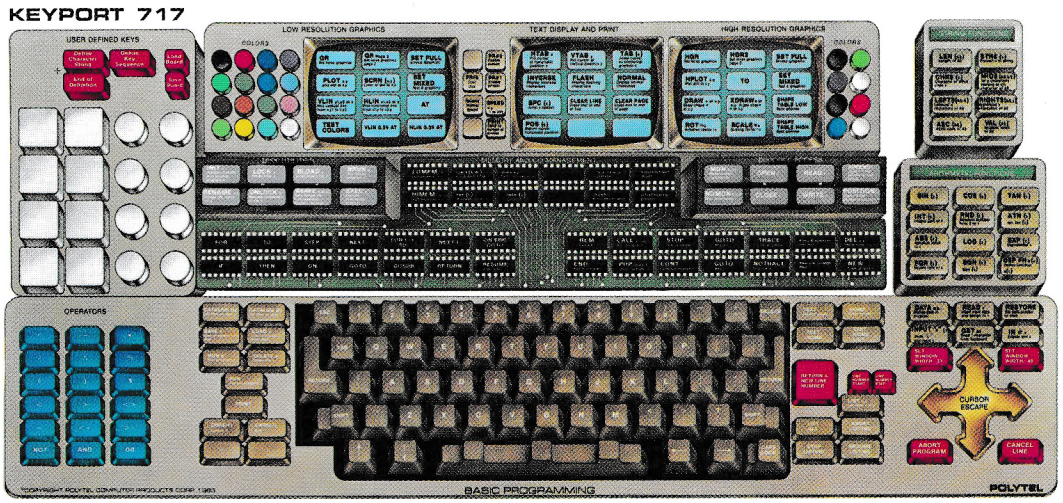
- Move the cursor from one cell to another
- Change the cursor direction
- Insert and delete rows and columns
- Change the windows, titles or column widths
- Put labels and values into cells
- Fix (#) the values in cells
- Replicate labels, repeating labels and blank cells
- Execute any function preceded by @
- Load other VisiCalc and Print to Disk Files

Use the blue **SEND TO DISK** key on the KEYPORT to set up a Print to Disk file.

Example

If you want to see an example of a Print to Disk file, LOAD PFD1. This is the VisiCalc file of the ZERO TASK1 Print to Disk file.

KEYPORT 717™ BASIC DATA SHEET



KEYPORT 717 BASIC DATA SHEET

The KEYPORT 717 is an advanced technology membrane keyboard with 717 fully programmable keys. It plugs directly into the game socket of the Apple II, II+ and IIe computers. The KEYPORT 717 can be configured for different applications by the use of overlays. KEYPORT 717 utility software allows you to develop your own applications on the KEYPORT 717.

BASIC INTERFACE

The KEYPORT 717 Basic Programming Diskette with Overlay has been programmed to generate all the BASIC and DOS commands with the touch of a single key, and it has many other very powerful features.

HOW TO USE

Calibrate your board using the procedure **INSTALLING AND CALIBRATING THE KEYPORT**, found on the back of this DATA SHEET. Put the BASIC Overlay on the KEYPORT and boot the BASIC Diskette. Press any key to enter its command. For example, if you want to generate CATALOG D2 touch the **CATALOG D2** key on the BASIC Overlay. If you want to generate the BASIC instruction COLOR = 13 touch the yellow key in the COLORS section of the low-resolution graphics. You don't have to remember that the code for yellow is 13 in lo-res graphics!

The **RETURN & NEW LINE NUMBER** key generates a carriage return and a new line number when you are entering a BASIC program. You can define the starting line number and the increment at any time. If you want to edit a program, the 4 golden arrows allow you to move the cursor in ESCAPE mode in 4 directions.

USER DEFINED KEYS

Any unlabelled key on the BASIC Programming Overlay can be defined at any time as a string of characters or a sequence of keys.

ADVANTAGES OF THE KEYPORT BASIC

With the BASIC Programming Overlay, beginners can very quickly learn both the BASIC language and the Apple II environment. On the other hand, experienced programmers can save up to 50% of the keystrokes required to enter and debug BASIC program lines.

For example, when developing a graphics application, the **TEXT:HOME:LIST** key allows you to switch from graphics mode to text mode and list your program with a single keystroke. This requires 15 keystrokes on the standard alphanumeric keyboard.

The BASIC Overlay uses 217 keys for the different BASIC and DOS commands, plus 60 typewriter keys. When the BASIC Interface is installed, both the KEYPORT 717 and the regular keyboard can be used.

HARDWARE AND SOFTWARE REQUIRED

To use the KEYPORT BASIC Overlay you need:

- Apple II, II+ or IIe with 48K and a single 16 sector disk drive
- KEYPORT 717

The BASIC Interface package contains the BASIC Programming Overlay and the BASIC Interface Diskette.

YOUR FIRST SESSION WITH THE BASIC PROGRAMMING OVERLAY

The following examples and tricks will show you the power of the BASIC Progamming Overlay and help you get started using your overlay. Remember, if you feel you made a mistake at any time, press the red **CANCEL LINE** key and start over. After installing the BASIC interface as described in **INSTALLING AND CALIBRATING THE KEYPORT**, try the following:

Catalog the diskette in Drive 1:

- Press **CATALOG D1** on the left hand side of the typewriter section. The contents of the diskette is listed on the screen.
- If the catalog is longer than one page, press **RETURN** to display the next page. When the **CATALOG** is finished, you get back the AppleSoft prompt ( ]). Next time you need to list the files on your disk, touch this key and save at least 7 strokes!

Now let's do some low-resolution graphics. In the Low Resolution Graphics section:

- Press **GR**, the screen clears and is ready to display low resolution graphics
- Press any color key, say the yellow key. The instruction COLOR = 13 is generated, and you saved 8 keystrokes!
- Press **VLIN 0,39 AT** and enter any number from 0 to 39, say 22, then press **RETURN**. A vertical yellow line appears, and you saved 10 keystrokes.
- Press another color key and **VLIN 0,39 AT**. Enter any number from 0 to 39 and press **RETURN** to display another line of color.
- Now let's display a horizontal line. Press a color key, and **HLIN 0,39 AT**. Enter a number, say 22, and press **RETURN**. A horizontal line appears.
- Now try pressing this series of keys: **VLIN** (not VLIN 0,39 AT) **5 , 10 AT 13 RETURN**. A short vertical line appears.
- Press **PLOT 27 , 32 RETURN**. A small box appears on the screen. With a few simple keystrokes you can draw some colorful lines and boxes.

What about writing a very simple program to display some lo-res graphics?

- Press **TEXT HOME** to the right of the typewriter section (you just saved 9 keystrokes!). This puts the screen back in TEXT mode and displays the cursor at the top left corner.
- Press **NEW** (bottom right of the dark green section) to erase any current program in memory and get ready for a new program. Press **RETURN** to confirm you really want to enter a NEW program.
- Now press the big red **RETURN & NEW LINE NUMBER**. This key generates 00010, your first BASIC line number.
- Press **GR** in the low-res section. The first program line sets the screen to lo-res graphics.
- Press **RETURN & NEW LINE NUMBER** again to generate line number 20. Press the yellow key. Line 20 sets the color to yellow.
- Press **RETURN & NEW LINE NUMBER** to generate line 30. Press **VLIN 0,39 AT 22 RETURN**. You have just entered a small program with a few key-strokes.
- Now press **TEXT:HOME:LIST** on the right hand side of the typewriter section. The program is listed on the screen.

When you press **RUN CURRENT PROGRAM** on the left hand side of the typewriter section the program is executed and you see the yellow line on the screen. If you want to edit your program:

- Press **TEXT:HOME:LIST** to go back to the program, then press **RETURN & NEW LINE NUMBER** to generate more instructions in your program. Press another color key to change the color.
- Then press **RETURN & NEW LINE NUMBER , HLIN 0,39 AT 22 RETURN**.
- Now press **RUN CURRENT PROGRAM** . Two lines are displayed on the screen. Keep switching from **RUN CURRENT PROGRAM** to **TEXT:HOME:LIST** and adding new lines to your program. Remember, you are saving hundreds of keystrokes in the process!

Suppose you want to modify line 30 and make it **VLIN 0,39 AT** *33* instead of *22:*

- Press **TEXT:HOME:LIST** then use the Up golden arrow until you reach line 30. Use the Left golden arrow to go to the start of line 30.
- Use the brown RIGHT arrow on the *typewriter section* to move the cursor until you reach the first *2* in 22. Type *33* then press **RETURN**.
- Always use the golden arrows to go to the very beginning of the line you want to edit, then use the typewriter arrows to move along the line you are editing. Type in the corrections, use the small brown arrows to go to the very end of the line and press **RETURN**.

The KEYPORT has 2 types of predefined keys:

- Character String Keys
- Function Keys

Character String Keys always output the same characters. *Function Keys* either perform a specific function or output a different set of characters each time they are pressed. The function keys described on this page are marked with an asterisk (*).

For example, the Character String Key **RETURN** outputs the same code (a carriage return) every time the key is pressed. The Function Key **RETURN & NEW LINE NUMBER** outputs a carriage return and a different line number each time it is pressed.

Another example is the Function Key **LINE START** . This key does *not* output any characters, but it prompts you to enter the Starting Line Number for the automatic line numbering feature.

All of the keys can be redefined using the DEFINE BOARD program. See your KEYPORT 717 Programmer Reference Manual.

You can define any of these KEYPORT keys during a BASIC programming session. Each USER DEFINED KEY can be defined as a string of characters or a sequence of KEYPORT keys. See the procedure DEFINING USER KEYS for instructions.

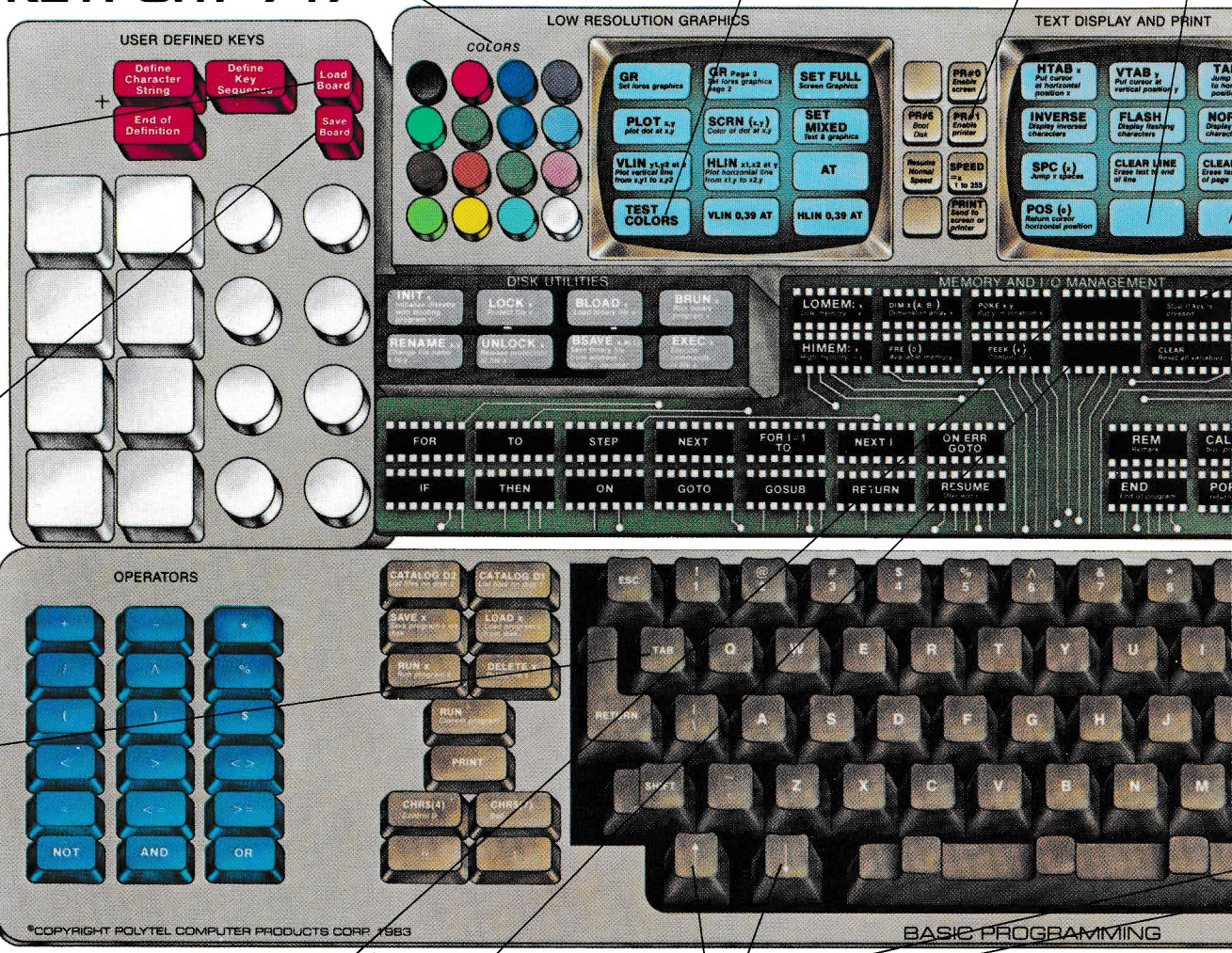
* This k
as PR
KEYP

This
COL

* These keys can be redefined by the user. Currently, they generate lo-res colors, COLOR = i where i is the Apple color code.

Displays the 16 lo-res colors on the screen in the same order as they are printed on the KEYPORT Overlay. Use this key to adjust your color monitor or television.

KEYPORT 717



* Lets you load a specific set of USER DEFINED KEYS. The system prompts you for the Board Name.

* Lets you save a set of USER DEFINED KEYS after you have defined all the keys you want to use with a particular application.

Currently *not* defined.

BASIC PROGRAMMING

This key can be redefined by the user. Currently, it tests to see if either a KEYPORT or keyboard key has been pressed.

* Uses Auto Line Number to complete th
up next program line number. Line Num
be set up using **LINE NUMBER STAR**
NUMBER STEP keys.

* Lists the entire program. If you or
of the program, use **LIST X,Y**.

* This key can be redefined by the user. Currently, it RUNs the SINE WAVE program.

Moves the cursor in the direction indicated. The → and ← function the same as the corresponding keys on the keyboard. The ↑ and ↓ function like **ESCAPE D** and **ESCAPE C** .

can be redefined by the user. Currently, it is defined
1. After using PR#1, press **RESET** to relink the
RT BASIC Interface.

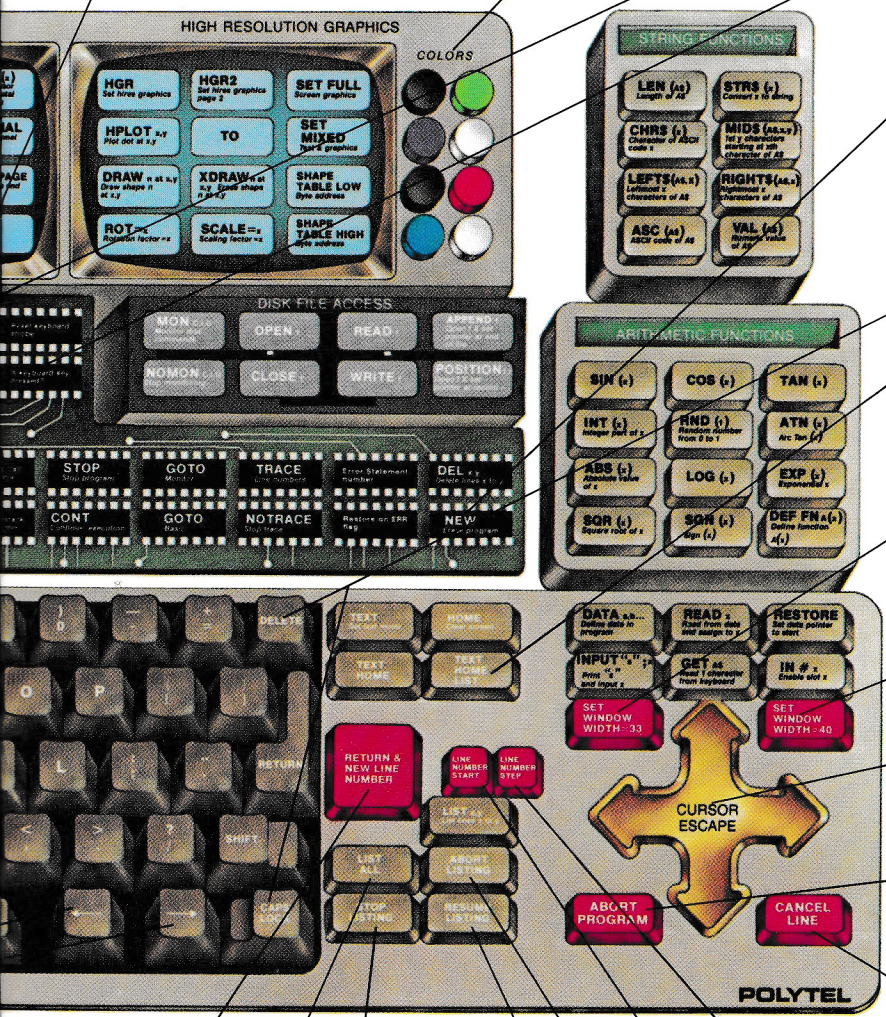
ey can be redefined by the user. Currently, it runs the
R BOX program.

This key can be redefined by the user. Currently, it runs the BOUNCING BALL program.

Generates HCOLOR = i where i is the Apple color code in high-resolution graphics.

If either a KEYPORT or keyboard key has been pressed, this key stops the program.

Tests to see if a *keyboard* key has been pressed.



* This key can be redefined by the user. Currently, it sets up Auto Line Number to start at 10 and step by 10, then generates NEW to clear any programs from memory. Press **RETURN** to clear the memory. Press **CANCEL LINE** to abort the NEW command.

Currently *not* defined.

* This key can be redefined by the user. Currently, it changes the screen to TEXT mode, clears the screen and LISTs the BASIC program currently in memory.

Sets the text window to 33 columns. Use this command to edit program lines without inserting extra blank spaces in PRINT and DATA statements.

Resets the text window to 40 columns.

Moves cursor in the direction of the arrow. Equivalent to **ESCAPE A**, **ESCAPE B**, **ESCAPE C** and **ESCAPE D**.

Generates a **CONTROL C** and **RETURN**. Stops execution of the program and returns to the AppleSoft BASIC prompt.

Generates a **CONTROL X** and cancels the remainder of the line.

current line and set
er Start and Step can
and **LINE**

* Allows you to enter the line number increments used with **RETURN & NEW LINE NUMBER**.

* Allows you to enter the Start Line Number used with **RETURN & NEW LINE NUMBER**.

want to list certain lines

* Cancels a program listing. Works only when scrolling is in progress.

* Stops listing of the program. This key and the **RESUME LISTING** key function like the **CONTROL S** switch.

* Continues listing a program after pressing **STOP LISTING**.

When you are satisfied with your program, you can save it on disk:

- Press **SAVE X** on the left hand side of the typewriter section.
- Type MYPROGRAM then press **RETURN**. Your program is saved on disk under the name MYPROGRAM.

To load and run your program from disk:

- Press **LOAD X** on the left hand side of the typewriter section.
- Type MYPROGRAM then press **RETURN**. Your program is loaded from disk into memory.
- Press **RUN CURRENT PROGRAM** and your program is executed.
- Press **TEXT:HOME** to go back to TEXT mode.
- Press **RUN X** on the left hand side of the typewriter section.
- Type MYPROGRAM then **RETURN**. Your program is automatically loaded and executed again.

You can also define some of the User Defined Keys. When testing a program, you will probably have to load and save it often. You can define a couple of the User Defined Keys to save and load MYPROGRAM:

- Press **DEFINE CHARACTER STRING**
- Press the top left white key
- Type LOAD MYPROGRAM
- Press **END OF DEFINITION**. Now you can load MYPROGRAM with a single keystroke
- Now press **DEFINE CHARACTER STRING**
- Press the bottom left white key
- Type SAVE MYPROGRAM
- Press **END OF DEFINITION**

Now, when you touch either of these 2 white keys you will LOAD MYPROGRAM or SAVE MYPROGRAM. Press **RETURN** and the command is executed immediately. You save 13 keystrokes everytime you LOAD or SAVE the program.

You can save the key definitions you just made by pressing the red **SAVE BOARD**, typing any name, then pressing **RETURN**. To load these definitions later, press **LOAD BOARD**, enter the board name and press **RETURN**. Try it NOW!

You can also use the SAMPLE program BSAMPLE with this overlay:

- Detach the small overlay provided in the KEYPORT 717 Programmer Reference Manual. (last page)
- Tape the overlay so the bottom left key coincides with the bottom left white key of the User Defined Keys
- Press **LOAD BOARD**, then type **BSAMPLBTAB** and press **RETURN**
- Press **RUN X** then type **BSAMPLE** and press **RETURN**.
- Use the eight arrows of the MOVE & PLOT section to plot the cursor on the screen and the other eight arrows to move the cursor without plotting
- Touch any color key in the USER DEFINE section to change the cursor color
- Press **SAVE PICTURE** . Then type any name and press **RETURN** to save the picture
- Press **CLEAR SCREEN** to clear the screen
- Press **LOAD PICTURE** and the picture name to load a picture

And now try this!

- Press **DEFINE KEY SEQUENCE**
- Press the first white key from the right on the top row (this key is on the plastic overlay)
- In the MOVE & PLOT section, press the arrows to move down, down, left, left, up, up, right, right
- In the MOVE CURSOR section, press the right arrow to move 5 times
- Press **END OF DEFINITION**
- Now press the top right key. It draws a small square, by repeating the key sequence you've just entered. Lets call this the BOX key.

To enhance your graphic further:

- Press **DEFINE KEY SEQUENCE**
- Press second white key from the right on the top row
- Press **PINK** key
- Press the BOX key you defined above
- Press the **LIGHT GREEN** key
- Press the BOX key again
- Press **END OF DEFINITION**
- Now press the key you just defined. It draws 2 colored squares, one pink and one green. You can repeat this process and draw nice lo-res shapes with very few key strokes!

INSTALLING AND CALIBRATING THE KEYPORT

Although the Apple IIe has 2 Game I/O sockets you can only use one at a time. Your KEYPORT will *not* work if the Apple IIe has something plugged into both the internal and external game connectors. Before you connect the cable or any electrical equipment to your computer, always be sure the power is OFF. Otherwise, you could destroy a RAM chip or one of the other ICs.

When you calibrate the KEYPORT, the computer stores the X, Y values of all the keys of one column and one row. These values are used to identify any pressed key on the KEYPORT. You must calibrate the KEYPORT the first time you use a KEYPORT-computer combination. After you have calibrated, everytime you boot the KEYPORT BASIC Interface Diskette, the calibration data is automatically loaded with the KP Monitor. You must have calibration data on every diskette you use with the KEYPORT.

If you press the wrong keys or the KEYPORT hangs up while calibrating, you can restart the calibration by pressing **R.** .

STEP	PROMPT	PROCEDURE
1.	—	If your KEYPORT cable has a 9 pin connector, you can plug it into the rear panel of the Apple IIe. Otherwise, position the 16 pin dip connector over the Game I/O connector at the right rear of the Apple. Be sure the notched corner of the connector or the white dot is toward the *front* of the Apple. Gently push the pins into the socket until they are firmly seated.
2.	—	Boot your KEYPORT BASIC Interface Diskette.
3.	**PRESS: 'M' FOR MENU OR ANY KEY TO CONTINUE**	Enter **M** from the keyboard to calibrate a new KEYPORT-computer combination.
4.	**⟨1⟩ RUN CALIBRATE ANY OTHER KEY TO CONTINUE**	Enter **1** from the keyboard to run the calibration program.
5.	**PRESS KEY OF X COORD:**	Find the 12th *column* from the left on the KEYPORT. Beginning at the bottom row, press each key in the column. The computer beeps as you press each key. When you press the top (18th) key, the computer beeps twice to let you know it is ready to calibrate the X coordinates.
6.	**PRESS KEY OF Y COORD:**	Find the 9th *row* from the bottom on the KEYPORT. Beginning at the left, press each key in the row. The computer beeps as you press each key. When you press the last (44th) key, the system saves calibration data onto the diskette.
7.	**PRESS: 'M' FOR MENU OR ANY KEY TO CONTINUE**	Press any keyboard key *except* **M** to load the BASIC interface. The system displays the AppleSoft BASIC prompt.

If you want to copy this calibration data onto another disk, use the KP Monitor Diskette Menu, Selection 3.

DEFINING USER KEYS

Types Of User Keys

When you set up the USER DEFINED KEYS, you can have the KEYPORT either output a string of characters or a sequence of KEYPORT keys.

For example, if your program prints consecutive lines of text, define a key sequence as

": PRINT RETURN & NEW LINE NUMBER PRINT"

Enter your first line of text up to *but not* including the final quote. Press the key you just defined. With a single key you're ready to enter the next line of text. Try it!

Hidden Keys

Although we have pictured 16 USER DEFINED KEYS on the overlay, all of the hidden key centers on this part of the KEYPORT can be defined. Any key in this area you do *not* define does nothing when pressed.

Key Capacity

All of the USER DEFINED KEYS are *not* the same. To give you more usable memory, we have given each row of keys a different capacity:

- The *top* row can have a maximum *string* length of 60 characters or a maximum *sequence* of 27 keys
- The *2nd* row can have a maximum *string* length of 40 characters, or a maximum *sequence* of 17 keys
- The *3rd* row can have a maximum *string* length of 25 characters, or a maximum *sequence* of 10 keys
- The *4th* row can have a maximum *string* length of 20 characters, or a maximum *sequence* of 7 keys
- All other key locations in the user defined section can have a maximum *string* length of 9 characters or a maximum *sequence* of 2 keys

STEP	PROMPT	PROCEDURE
1.	—	Press **DEFINE KEY SEQUENCE** or **DEFINE CHARACTER STRING**
2.	**PRESS KP KEY**	Press the USER DEFINED KEY you want to use.
3.	**ENTER STRING** OR **ENTER SET OF KEYS**	If you are defining a character string, enter the characters you want this key to output including any carriage returns. Use the KEYPORT or keyboard to enter the characters. If you are defining a key sequence, enter the set of characters or keys you want this key to output. You can use *any* key on the KEYPORT. The system displays **ACCEPTED** after every key.
4.	—	Press **END OF DEFINITION**.
5.	**ACCEPTED** OR **COMPLETED**	The system has accepted your definition of a character string. The system has accepted your definition of a key sequence.

Write the description of the key on the KEYPORT using a lead pencil, felt-tipped marker or grease pencil. Now whenever you want the characters you entered, simply press the USER DEFINED KEY you defined.

POLYTEL
Computer Products Corp.
2121 S. Columbia, Suite 550
Tulsa, Oklahoma 74114
(918) 744-9844

Dear Customer:

On behalf of the POLYTEL COMPUTER PRODUCTS CORPORATION, let me congratulate you on the purchase of your KEYPORT 717. If there are any questions, or if we may be of any future service to you, please do not hesitate to call Sherif Danish, Kris Kimbrough, or myself. Our toll free number is 800-331-4411. In Oklahoma call 918-744-9844.

Please take a minute to fill out the Customer Information and Warranty form and mail it back to us. This will allow us to mail you any updated software and notify you of the availability of any additional programs.

Good luck!

Thank you again.

Kevin G. Baugess
Marketing Director
POLYTEL COMPUTER PRODUCTS CORP.

KGB:blm

*** HOT LINE 1-800-331-4411 IN OKLAHOMA 918-744-9844 ***

IMPORTANT NOTICE

(READ THIS FIRST - **IT MAY SAVE** YOU SOME TIME AND TROUBLE LATER.)

1. BACK-UP (COPY) YOUR POLYTEL DISKETTES AND STORE THEM IN A CLEAN, SAFE, DRY PLACE.

   You can make any number of backup copies of each diskette.

2. IF YOUR APPLE HAS OTHER DEVICES CONNECTED TO THE GAME PORT OR TO THE APPLE KEYBOARD

   If your KEYPORT does not work properly when such devices are attached, call us for assistance.

3. CALIBRATE BEFORE FIRST USE

   For the KEYPORT to function correctly, it must first be "calibrated". A calibration program is provided. See Programmer's Manual for details.

   This "calibration" needs to be done only once for each Keyport-computer combination. The results of the calibration must be stored on each Disk containing an application that uses the KEYPORT. After "booting" the Keyport-monitor diskette, choose CALIBRATE from the menu. Next, choose CALIBRATION DUPLICATE and copy your calibration data on each applicatio diskette. For example, if you have the BASIC application, and THE FARM application, then you must duplicate the results of calibration on both the BASIC and THE FARM diskettes.

4. THE KEYPORT MEMBRANE IS VERY SENSITIVE

   Do not place or leave any objects (pencils, books, etc.,) on top of the Keyport membrane. Doing so may cause intermittent shorts.

5. KEYPORT MONITOR LISTING

   The Keyport Monitor source listing is given in the manual to show you how the Keyport is handled. This code is continuously enhanced, while the communication area with your application program (Page 3 of manual) is unchanged. Therefore, the source code provided on the Keyport Monitor diskette is a text file under the name KDBLIST could be different from the listing provided in the Programmer's Reference Manual.

*** HOT LINE 1-800-331-4411 IN OKLAHOMA 918-744-9844 ***

EQUIPMENT LIST

1 KEYPORT 717

2 PROGRAMMER OVERLAYS

1 KEYPORT 717 Monitor Diskette

Programmer's Reference Manual

If BASIC Interface ordered:

- BASIC PROGRAMMING Overlay
- BASIC Interface Diskette
- BASIC data sheet/user's guide

If VisiCalc Interface ordered:

- VisiCalc Overlay
- VisiCalc Interface Diskette
- VisiCalc data sheet/user's guide

If THE FARM Inteface ordered:

- THE FARM PROGRAMMING Overlay
- THE FARM Interface Diskette
- THE FARM data sheet/user's guide

CUSTOMER INFORMATION AND WARRANTY FORM

1. NAME _____
   COMPANY (OPTIONAL) _____
   ADDRESS _____

2. PHONE (OPTIONAL) _____

3. FROM WHOM DID YOU BUY THE KEYPORT?

   _____

   DATE VENDOR CITY

4. WHAT OVERLAYS DO YOU HAVE?

   ---------- ---------- ----------

   ---------- ---------- ----------

5. KEYPORT SERIAL NUMBER: _____

6. DO YOU HAVE ANY SUGGESTIONS?

7. MAIL TO: POLYTEL COMPUTER PRODUCTS CORPORATION
   2121 S. COLUMBIA, SUITE 550
   TULSA, OKLAHOMA 74114

QUICK GUIDE TO "THE FARM"

* INSTALLING AND CALIBRATING KEYPORT

First, read the section INSTALLING AND CALIBRATING THE KEYPORT in the Programmer's Reference Manual.

Boot THE FARM.

Menu will appear on screen. Press 1 if you want to calibrate your keyport-computer combination. (See INSTALLING AND CALIBRATING in reference manual.) Otherwise, press any key.

The system will then load THE FARM. This will take about 90 seconds.

* TELL ME

When THE FARM has been loaded, the words TELL ME will appear on the screen. At this time, press any star on the farmyard. A picture, along with the name of that picture, will appear on the screen.

You can continue to play TELL ME by pressing another star on the farmyard or by pressing one of the three question keys (purple keys) found under the TELL ME key in the lower left corner of the overlay.

If you wish to leave TELL ME, do one of the following:

To go to STORYWRITING, first press one of the blue STORYWRITING keys. Then press YES. The system will then load STORYWRITING in about 15 seconds.

To go to a game, press any of the orange GAME keys under the heading GAME. You will then be prompted with a question. If you wish to go to the specified game, then press YES. The system will then load the appropriate game.

* STORYWRITING

When STORYWRITING is finished loading, a white frame will appear on the screen with a blinking cursor in the upper left-hand corner of that frame. Now you may do one of the following:

(1) WRITE A STORY

To write a story, you may use any of the starred picture keys, a STORYWRITING key, or a typewriter key. Editing is available by use of the arrows to go up, down, left or right. The END OF LINE key will allow you to go to the beginning of the next line.

(2) GET A STORY

Press GET A STORY (blue key). You will then be asked for the title of the story. Type the story's title using only the typewriter keys. Using other than letters will be ignored. When you have finished typing the title of the story, press the END OF LINE key.

A question will then appear asking if title is correct. Press either the YES or NO keys. If when typing your title you have made a mistake, this is the time when you can correct the error. During typing of the title, you are not allowed backspace editing. If an error is made, press END OF LINE. Then press NO and retype the title.

(3) SAVE A STORY

Press SAVE A STORY (blue key). Follow the title typing directions listed above under GET A STORY. The system will then save the story on disk and return to give you a blank screen.

(4) DELETE A STORY

Press DELETE A STORY (blue key). Follow the title typing directions under GET A STORY. The system will then delete the story from disk.

(5) Display LIST OF STORIES.

Press DISPLAY LIST OF STORY. At this time your present story will be saved on disk. A current list of saved stores will then appear on the screen. After you are finished with the list, press any key. At this time the system will reload the story you had been working on. Always check before saving a story to make sure that there are not ten stories already stored on disk.

(6) PRINT CURRENT STORY, STORY TITLES, or ALL STORIES

Press either PRINT CURRENT STORY, PRINT STORY TITLE, or PRINT ALL STORIES. The system will then ask you if you have a printer. Make sure at this time the printer is on and ready before pressing the YES key. If you don't have a printer, press the NO key. The system will print the requested item(s). The screen will then be cleared and be ready for writing another story.

(7) CLEAR SCREEN

Press CLEAR SCREEN key and answer YES to the question. The present story will be cleared. Cursor will be in the upper left corner of STORYWRITING frame.

(8) Leave STORYWRITING

To leave STORYWRITING, do the following:

To go to a game, press the appropriate orange GAME key.

To go to TELL ME, press the purple TELL me key.

* GAMES

After GAME has been loaded by system, the name of the game will appear on the screen. You should then press one of the orange LEVEL keys.

A sequence of pictures or words will then appear on the screen. The number of pictures to be shown is displayed in the first text line in the lower left corner. Underneath is displayed a number which is a counter to let you know which picture you are on.

After the complete sequence of pictures has been displayed, the computer screen will display either NOW TOUCH or NOW TYPE. At this time you are to either touch the sequence of pictures or type the sequence of words in the correct order.

There is no editing allowed in the typing games. Press END OF LINE when finished typing each word.

You are allowed three wrong sequences during a game. If you have not made three mistakes, you will be shown another sequence.

To leave a game, press either a blue key (STORYWRITING), purple key (TELL ME), or a orange key (GAME). Press YES if asked a question.

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